

Town of Westford

2016 Green Community Competitive Grant

Final Report





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Executive Summary

The town of Westford received an award of \$250,000 from the 2016 Green Community Competitive Grant program to continue our efforts to reduce energy consumption at each of our municipal buildings. Since the town of Westford was designated as a Green Community by the Massachusetts Department of Energy Resources (DOER) in December of 2013, we have received a total of \$641,025 to pursue and accomplish many projects aimed at reducing the town's overall energy consumption. These projects will help us achieve the energy efficiency and sustainability goals identified in our Energy Reduction Plan (ERP). Our ERP is available online: <http://www.mass.gov/eea/docs/doer/green-communities/grant-program/energy-reduction-plan-westford.pdf>



Figure 1 - Grant Announcement at Auburn Town Hall

The seven approved projects funded with the town's 2016 grant award are estimated to potentially save the town roughly 280,000 Kwh of electricity and 6,100 therms of natural gas on an annual basis. The combined annual utility savings are anticipated to exceed \$50,000 in the first year and will increase over time as the cost of electric and natural gas increase.

In this report you will find a summary of each project we completed with photographs and other related information to demonstrate how the town of Westford benefitted from this grant program.

We are looking forward to monitoring and tracking the success of these projects using the MassEnergyInsight tool. The point of contact for DOER to connect with for future reporting of actual energy savings at one year and two years for all of the projects in this report is Eric Heideman, Assistant Town Manager (ehideman@westfordma.gov or 978-692-5501)

Project 1 Stony Brook Middle School Energy Management System and equipment upgrades

Summary

We modernized the controls in the Blanchard Middle School. The existing energy management control system was outdated with limited capability and it was operated using DOS commands. Scheduling capabilities and control strategies were limited and according to Westford Facilities staff the overall function of the system was very poor. Since it was so difficult to operate, the heat often remained on during snow days or even during some scheduled holidays. This new system will improve the staff's ability to maintain comfort for students and staff while reducing energy consumption. Other Benefits of this project include trending capabilities, enhanced alarming capabilities, and centralized control, thus enabling staff and facilities maintenance personnel the ability to easily access system information, monitor all EMS points, and make changes as needed. The benefits of this project will be reduced consumption in both electricity and natural gas and improved performance of the heating system.

Projected Annual Savings: \$16,761
Annual Electric Reduction: 85,472 Kwh
Annual Natural Gas Reduction: 3,996 therms

Project Team

Project Lead – Town	Eric Heideman, Assistant Town Manager
Project Oversight – Town	Richie Crocker, School Facility Manager
Project Lead – Vendor	Eric Hanian, EMC
Sub-contractor	Andrew Coffin, Siemens Inc.

Project Timeline

DOER Approval	July 2016
Town Approval	July 2016
Kick-off Meeting	July 2016
Installation Start	Dec 2016
Installation End	Jan 2017
Final Invoice Paid	Feb 2017

Total Project Cost: \$95,915

Green Community Funding:
\$68,615

National Grid Incentives:
\$31,296

Town funds: \$0

Procurement Process

EMC Inc. was selected as the vendor for this project in accordance MGL Chapter 25 section 14.

Project 2 – George Rogers Fire Station LED Lighting Project

Summary

This project involved the replacement of 117 interior light fixtures and 30 exterior light fixtures with energy efficient LED fixtures at the George Rogers Fire Station located at 39 Town Farm Road in Westford, MA. The George Rogers Fire Station is in operation 24 hours per day 7 days per week, so lighting is used constantly. Replacing these fixtures with more efficient lighting is planned to reduce energy consumption significantly.

Projected Annual Savings: \$5,282
Annual Electric Reduction: 34,076 Kwh

Project Team

Project Lead – Town	Eric Heideman, Assistant Town Manager
Project Oversight – Town	Bill Kenison, Facility Engineer
Project Lead – Vendor	Eric Hanian, EMC

Project Timeline

DOER Approval	July 2016
Town Approval	July 2016
Kick-off Meeting	July 2016
Installation Start	Sep 2016
Installation End	Oct 2016
Final Invoice Paid	Nov 2016

Total Project Cost: \$52,674

Green Community Funding:
\$40,747

National Grid Incentives:
\$11,927

Town funds: \$0

Procurement Process

EMC Inc. was selected as the vendor for this project in accordance MGL Chapter 25 section 14.



Figure 2 - Installation of Exterior Lighting Fixtures at Fire Station



Figure 3 - New LED Exterior Light Post at Fire Station

Project 3 – LED Lighting Project at Water Department Facilities

This project involved the replacement of 75 existing exterior light fixtures with energy efficient LED fixtures. The 75 fixtures are located at the Water Treatment Facility, the Water Department Garage, and at multiple Pump Stations throughout town. Replacing these fixtures with more efficient lighting is anticipated to reduce energy consumption significantly. Other benefits of this project include standardization of lighting components and reduced maintenance cost related to longer useful life of components.

Projected Annual Savings: \$9,293
Annual Electric Reduction: 59,955 Kwh

Project Team

Project Lead – Town	Eric Heideman, Assistant Town Manager
Project Oversight – Town	Bill Kenison, Facility Engineer
Project Lead – Vendor	Eric Hanian, EMC

Project Timeline

DOER Approval	July 2016
Town Approval	July 2016
Kick-off Meeting	July 2016
Installation Start	Sep 2016
Installation End	Oct 2016
Final Invoice Paid	Nov 2016

Total Project Cost: \$38,374

Green Community Funding:
\$25,274

National Grid Incentives:
\$9,100

Town funds: \$4,000

Procurement Process

EMC Inc. was selected as the vendor for this project in accordance MGL Chapter 25 section 14.



Figure 4 - Water Department Entrance with New LED Fixtures



Figure 5 - Water Department Exterior LED Wall Pack Installations

Project 4 – Town Hall LED Lighting Project

This project involved the replacement of 193 interior light fixtures and 4 exterior light fixtures with energy efficient LED fixtures at the Town Hall located at 55 Main Street in Westford, MA. The Town Hall is a heavily used facility and the replacement of these fixtures with more efficient lighting is anticipated to reduce energy consumption significantly. Other benefits of this project include standardization of lighting components and reduced maintenance cost related to longer useful life of components.

Projected Annual Savings: \$5,350
Annual Electric Reduction: 34,514 Kwh

Project Team

Project Lead – Town	Eric Heideman, Assistant Town Manager
Project Oversight – Town	Bill Kenison, Facility Engineer
Project Lead – Vendor	Eric Hanian, EMC

Project Timeline

DOER Approval	July 2016
Town Approval	July 2016
Kick-off Meeting	July 2016
Installation Start	Sep 2016
Installation End	Oct 2016
Final Invoice Paid	Nov 2016

Total Project Cost: \$46,847

Green Community Funding:
\$34,378

National Grid Incentives:
\$12,080

Town funds: \$388.30

Procurement Process

EMC Inc. was selected as the vendor for this project in accordance MGL Chapter 25 section 14.

Project 5 – LED Lighting Project at Highway Facility

This project involved the replacement of 224 interior light fixtures and 45 exterior light fixtures with energy efficient LED lighting at the Highway Facility located at 28 North Street in Westford, MA. The lights installed at this location are on most of the day thus making this a great energy savings opportunity by upgrading to LED fixtures. The installation of LED fixtures allowed for both reduced energy consumption and provided safe levels of lighting for our employees to conduct evening-hour highway operations. We had previously replaced the lighting in the mechanic's bay and the apparatus bay and in some of the offices. This LED project replaced all of the remaining fixtures installed at the Highway Facility.

Projected Annual Savings: \$10,193
Annual Electric Reduction: 65,759 Kwh

Project Team

Project Lead – Town	Eric Heideman, Assistant Town Manager
Project Oversight – Town	Bill Kenison, Facility Engineer
Project Lead – Vendor	Eric Hanian, EMC

Project Timeline

DOER Approval	July 2016
Town Approval	July 2016
Kick-off Meeting	July 2016
Installation Start	Sep 2016
Installation End	Oct 2016
Final Invoice Paid	Nov 2016

Total Project Cost: \$71,274

Green Community Funding:
\$51,546

National Grid Incentives:
\$19,727

Town funds: \$0

Procurement Process

EMC Inc. was selected as the vendor for this project in accordance MGL Chapter 25 section 14.



Figure 6 - Highway Garage Exterior Lighting Upgrades to LED



Figure 7 - Ground Mounted LED Lights Outside Highway Facility

Project 6 – Energy Star Food Service Equipment for School Department

This project involved the replacement of four appliances in three of our school buildings to modernize our food service equipment and take advantage of the energy savings that will result from replacing old equipment with new ENERGY STAR rated appliances.

Projected Annual Savings: \$1,695
Annual Natural Gas Reduction: 1,304 therms

Project Team

Project Lead – Town	Eric Heideman, Assistant Town Manager
Project Oversight – Town	Colleen Wallace, Food Service Director
Project Lead – Vendor	United Restaurant Equipment Company

Project Timeline

DOER Approval	July 2016
Town Approval	July 2016
Kick-off Meeting	July 2016
Installation Start	Sep 2016
Installation End	Oct 2016
Final Invoice Paid	Nov 2016

Total Project Cost: \$28,241
Green Community Funding: \$21,771
National Grid Incentives: \$6,000
Town funds: \$1,264

Procurement Process

EMC Inc. was selected as the vendor for this project in accordance MGL Chapter 25 section 14.





Figure 8 - New Energy Star Rated Commercial Kitchen Equipment



Project 7 – Energy Management Upgrades at Highway Facility

This project involved the modernization of the energy management controls in the Highway Facility located at 28 North Street in Westford, MA. The scope of work involved the replacement of the existing control system with modern controls to provide user capabilities to schedule and regulate temperatures and maximize the energy efficiency potential of the components of the HVAC system. The replaced system was obsolete and is unable to support software updates. Installing the new NAE-35 supervisory controller allowed software upgrades and provided energy savings by adding holiday setback and separate make-up air unit schedules. Other benefits of this project included trending capabilities, enhanced alarming capabilities, and centralized control enabling staff and facilities maintenance personnel the ability to easily access system information, monitor all EMS points, and make changes as needed.

Projected Annual Savings: \$1007
Annual Natural Gas Reduction: 775 therms

Project Team

Project Lead – Town	Eric Heideman, Assistant Town Manager
Project Oversight – Town	Bill Kenison, Facility Engineer
Project Lead – Vendor	HOWSE Corp.

Project Timeline

DOER Approval	July 2016
Town Approval	July 2016
Kick-off Meeting	July 2016
Installation Start	Sep 2016
Installation End	Oct 2016
Final Invoice Paid	Nov 2016

Total Project Cost: \$8,500
Green Community Funding: \$8,500
National Grid Incentives: \$0
Town funds: \$0

Procurement Process

EMC Inc. was selected as the vendor for this project in accordance MGL Chapter 25 section 14.





Figure 9 - New Energy Management Head End for Highway Facility

Additional Information

Public Involvement and Support

All of the projects were discussed at public meetings conducted by the Energy Committee and the Board of Selectmen. Monthly Town Manager's newsletters were used to inform residents of these projects.

We wanted to provide a warm thank you to the Green Communities Designation Program for allowing our community to continue to implement energy reduction measures which not only help our operating and capital budgets, but also reduce greenhouse gases and aid our community in becoming more sustainable.

